Appendix A: Marked-up Version of Substitute Specification

A WARP KNIT HAVING AN EXCELLENT TOUCH, AND A PROCESS OF PREPARING THE SAME

This Application claims priority to PCT/KR00/01196 filed November 30, 2000 and to Republic of Korea Patent Applications 2000-54840 filed September 19, 2000; 2000-54839 filed September 19, 2000; and 1999-58119 filed December 16, 1999.

TECHNICAL FIELD

The present invention relates to a warp knit having excellent touch and a process of preparing such a warp knit.

More particularly, the present invention relates to a warp knit with softness and draping property due to its very fine structure and thus useful for materials of artificial leathers or ladies' clothes, and a process of preparing such a warp knit.

BACKGROUND ART

If a fiber becomes ~~fined~~fine, its bending strength becomes weakened. ~~Accordingly~~However, since fabrics produced with ultra fine fibers have very soft touch, researches in connection with producing such ultra fine fibers on a commercial scale are developing very actively. Also, development of the technology ~~which is~~ capable of producing extremely fine synthetic yarn ~~extremely finely~~ leads to great improvement of the value of the goods of sensitive materials for clothes.

Generally, ~~a process of~~ preparing ultra fine fiber may be accomplished by ~~is divided into~~ three types of processes: a direct spinning process; a two components division type spinning process; and a two components extraction type spinning process. In the direct spinning process, it is possible to prepare ultra fine fiber of 0.3~~-~~to 0.5 denier. In the two components division type spinning process, it is possible to prepare ultra fine fiber of 0.2 denier. In the two components extraction type spinning process, it is possible to prepare ultra fine fiber of 0.01 denier or below.

~~In case that the~~When ultra fine fiber prepared by means of the direct spinning process is applied to a warp knit, warping property and appearance of the warp knit is very poor since numerous filaments are scattered. Furthermore, the warp knit thus prepared is very inferior ~~in~~ to touch and writing effect.

~~In case that the~~When ultra fine fiber prepared by means of the two components division type composite spinning process consisting of nylon/polyester is applied to a warp knit, warping property and knitting property of the warp knit is very poor since the nylon is isolated from the polyester by means of the tension and friction in warping and knitting. Furthermore, appearance of the prepared product is very poor due to limit of the denier of the ultra fine fiber.

~~In case that the~~When composite fiber of 0.05 denier or below prepared by means of the two~~-~~ components extraction type spinning process is applied to a warp knit, warping property, knitting property and touch of the warp knit are good; however, density

~~in~~ of the structure of the warp knit is ~~loosened~~ non-uniform and thus appearance of the warp knit is poor. ~~since the extraction component is extracted at the following processing step for producing in ultra fine fiber.~~ Furthermore, the warp knit prepared by means of the afore-said process is inferior in shape stability and flexibility. ~~thereof.~~

A variety of ~~Producing~~ goods are produced with ultra fine fiber ~~are developing in variety~~ in connection with textile applications. However, producing goods with ultra fine fiber ~~are~~ is not developing in connection with knitting applications ~~since~~ because of the poor warping property and the several drawbacks ~~generated at the following processing step as mentioned above.~~ mentioned above.

Accordingly, it is an object of the present invention to prepare a warp knit, which has excellent touch, shape stability, flexibility, and appearance, and thus is suitable for materials of ladies' clothes, with good warping property and knitting property.

~~DISCLOSURE~~ SUMMARY OF THE INVENTION

The present invention provides a warp knit which has excellent touch, shape stability, flexibility, and appearance, and thus is suitable for materials of ladies' clothes. The present invention also provides a process of preparing such a warp knit with good warping property and knitting property.

More particularly, the present invention relates to a warp knit ~~comprising~~ consisting of three layers, namely a front surface layer, a rear surface layer, and an

intermediate layer arranged between the front surface layer and the rear surface layer. ~~,~~ ~~the~~ The front surface layer consisting of ultra fine yarn with mono-filament denier of 0.01~~~~to about 0.3 denier, the intermediate layer consisting of spandex elastic yarn, the rear surface layer consisting of synthetic yarn or high shrinkage yarn with mono-filament denier of 1~~~~to about 5 denier, wherein the recovery rate of elongation in the directions of wale and course is 25~~~~to about 60 %.

The present invention also relates to a process of preparing a warp knit having excellent touch, ~~characterized in that firstly~~comprising the steps of~~,~~: knitting a warp knit ~~by using a~~with composite fiber ~~consisting~~ made of a fiber ~~formation~~ forming component of 0.01~~~~to about 0.3 denier, and an extraction component as a yarn ~~of a~~for the front surface layer, a spandex elastic yarn as a yarn for the~~an~~ intermediate layer, and a polyester yarn or high shrinkage yarn with mono-filament of 1~~~~to about 5 denier as a yarn ~~of a~~for the rear surface layer~~,~~; and then raising the warp knit until the shrinkage rate of the warp knit is ~~reached~~ 40% or more, and then ~~preliminarily~~ pre-heating, extracting the extraction component from the composite yarn, dyeing, buffing, and finally heating the warp knit continuously through hot air dryer.

BRIEF DESCRIPTION OF THE DRAWINGS

The preferred embodiment of the present invention will now be described by way of example with reference to the accompanying drawings in which:

Fig. 1 is a graph showing recovery rate of elongation of a warp knit measured using an Instron in accordance with the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

~~The present invention will now be described in more detail.~~

~~The inventor of the present application accomplished the present invention, taking notice of the fact that the~~ The selection and the combination of the materials ~~in designing structure~~ is very important in order to prepare polyester warp knit which is as soft as natural suede and which has excellent appearance as well as excellent warping ~~property~~ and knitting property.

First of all, the present invention uses a composite fiber consisting of fiber ~~formation~~ forming components of 0.01~~~~ to about 0.3 denier and ~~extraction~~ extracting fiber components as a yarn ~~of~~ for the front surface layer. ~~If~~ When the extraction component is removed from the composite fiber, ~~the~~ a fiber ~~formation~~ forming component with mono-filament denier of 0.01~~~~ to about 0.3 denier is ~~only remained~~left. If the mono-filament denier of the yarn ~~at~~ for the front surface layer is more than 0.3 denier, its soft touch is poor and the writing effect ~~is not revealed~~poor. If the mono-filament denier of the yarn ~~at~~ of the front surface layer is less than 0.01 denier, its soft touch is maintained, but its appearance is poor since ~~the~~ raised fibers are omitted or entangled due to friction.

It is preferable that polyester is used as the fiber ~~formation~~ forming component and copolyester with excellent alkali hydrolysis property is used as the extraction component of the composite fiber of the ~~used as~~ yarn of the front surface layer. The content of the extraction component in the composite fiber is generally 20~to about 40 % ~~in~~ by weight.

It is preferable that the density of the yarn ~~at~~ of the front surface layer is increased in order to improve the touch of the warp knit. ~~It is possible for~~For increasing the density of the yarn ~~at~~ of the front surface layer, it is possible to reduce the content of extraction component in the composite fiber during the manufacturing stage; However, reductions in the content of the extraction component of the composite fiber is technically limited by the ~~however, it is curbed technically in~~ spinning process, and there are also limitations in increasing the density ~~thereof~~ the front surface yarn even if the content of the extraction component in the composite fiber is reduced. For the purposes of this description, density refers to the number of fibers per inch of the warp knit and this term is expressed in terms of wales and courses per inch of the warp knit.

~~Accordingly, the~~The present invention is further characterized in that spandex elastic yarn are used as yarn of the intermediate layer, whereby the yarn density of the front surface layer is increased by virtue of the shrinkage of the intermediate layer. The spandex elastic yarn, which is a yarn of the intermediate layer, ~~is of~~has excellent

shrinking property, and therefore ~~it~~ increases the yarn density of the front surface layer ~~on~~ of the finished warp knit, and provides good touch and ~~,~~ flexibility ~~and repulsiveness~~ to the warp knit. The total denier of the spandex elastic yarn is preferably between 30 and 90 denier.

Next, synthetic yarn with mono-filament denier of 1~~~~ to about 5 denier, more preferably of polyester yarn or high shrinkage yarn, ~~are~~ is used as the yarn ~~of~~ for the rear surface layer. If the mono-filament denier of the yarn at the rear surface layer is less than 1 denier, draping property of the warp knit is decreased. If the mono-filament denier of the yarn at the rear surface layer is more than 5 denier, warping property and knitting property of the warp knit are deteriorated. If the regular polyester yarn is used as the yarn of the rear surface layer, mechanical stability and shape stability of the warp knit is improved. ~~Concretely~~Preferrably, polyester yarn of 50 denier/24 filament ~~of polyester yarn~~ is used as the yarn of the rear surface layer. The high shrinkage yarn has high shrinkage rate ~~of~~ in boiling water, ~~whereby it is prevented~~ preventing ~~that~~ the ultra fine yarn of the front surface layer ~~are~~ from come out of the rear surface layer.

The high shrinkage yarn, which ~~are~~ is used as the yarn of the rear surface layer, preferably ~~have~~ has the shrinkage rate ~~of~~ in boiling water of 15~~~~ to about 50 % and the stress of the heat shrinkage of 0.2 g/d or more. If the shrinkage rate of boiling water is less than 15 %, it is not possible to increase the density of ultra fine yarn, which ~~are~~ is the yarn of the front surface layer, and thus the touch is poor since the shrinkage is extremely low.

If the shrinkage rate ~~of~~ in boiling water is more than 50 %, it is possible to increase the density of ultra fine yarn, which ~~are~~ is the yarn of the front surface layer; however, it is hard to control the process width of the finished warp knit since the shrinkage is extremely high. Furthermore, if the stress of the heat shrinkage is less than 0.2 g/d, the stress between the structural points is not overcome even if the shrinkage rate ~~of~~ in boiling water is high, and therefore sufficient shrinkage is not provided.

Copolyester is preferably used as the high shrinkage yarn ~~as~~ mentioned above. Co-polymer components include bisphenol-A, polyethyleneglycol, isophthalic acid or the like. However, the present invention is not limited to the co-polymer components ~~as~~ described above.

The content of the yarn of the front surface layer when it is knitted is preferably 40~~~~ to about 87 % ~~in~~ by weight of the total weight of the processed warp knit. If the content of the yarn of the front surface layer is less than 40 % in weight, the touch of the warp knit is poor. If the content of the yarn of the front surface layer is more than 87 % in weight, the draping property and the mechanical property of the warp knit is deteriorated as the content of the yarn of the intermediate layer and the yarn of the rear surface layer are little relatively.

On the other hand, the content of the yarn of the intermediate layer and the yarn of the rear surface layer is preferably 3~~~~ to about 20 % in weight and 10~~~~ to about 57 % in weight of the total weight of the processed warp knit, respectively. If the content of the

yarn of the intermediate layer and the yarn of the rear surface layer is more than the range ~~as~~ mentioned above respectively~~-~~, the touch of the warp knit is poor; and if the content of the yarn of the intermediate layer and the yarn of the rear surface layer is less than the range ~~as~~ mentioned above respectively, the shape stability and the draping property of the warp knit are deteriorated.

The present invention is further characterized in that ~~such a~~ raw warp knit as mentioned above is raised so that the shrinkage rate of the raw warp knit is 40 % or more before ~~preliminary~~ pre-heat treatment of the raw warp knit. After the raw warp knit is raised according to the present invention, it is ~~preliminarily~~ pre-heat-treated as usual, and ~~it is~~ treated in alkali solution, ~~thereby~~ whereby the extraction component is removed from the composite fiber. After that, the warp knit is dyed, buffered and finally heat-treated.

It is preferable to maintain the density of the processed warp knit at 40~~~~ to about 80 wale/course number/~~each~~/inch so that excellent touch and ~~the~~ shape stability is obtained.

The warp knit of the present invention is composed densely out of ultra fine yarn with mono-filament denier of 0.01~~~~ to about 0.3 denier, whereby its touch and appearance are very excellent. Especially, as the warp knit of the present invention includes ~~the~~ an intermediate layer consisting of spandex elastic yarn with excellent flexibility, the density of the ultra fine yarn at the front surface layer is higher, and recovery rate of elongation of ~~a~~ the warp knit in the directions of the wale and the course

is 25~to about 60 %, which represents excellence. Also, as the warp knit of the present invention includes the rear surface layer consisting of ~~the~~ yarn of regular synthetic yarn with mono-filament denier of 1~to about 5 denier, the shape stability and the mechanical property of the warp knit are excellent.

As described in detail above, the warp knit of the present invention has excellent touch, appearance, flexibility, shape stability, and draping property, and thus it is suitable for materials ~~of~~ for ladies' clothes or materials ~~of~~ for artificial leathers.

The properties of the warp knit according to the present invention are evaluated as follows:

Softness

Softness of the warp knit is evaluated from the sensitive examination by ten specialists. If more than eight specialists determine that the warp knit is soft, it is excellent. If five~to about seven specialists determine that the warp knit is soft, it is ordinary. If more than eight specialists determine that the warp knit is not soft, it is poor.

Draping property

Draping property of the warp knit is evaluated from the sensitive examination by ten specialists. If more than eight specialists determine that the warp knit has draping property, it is excellent. If five~to about seven specialists determine that the warp knit has draping property, it is ordinary. If more than eight specialists determine that the warp knit has poor draping property, it is poor.

Writing effect

Writing effect of the warp knit is evaluated from the sensitive examination by ten specialists. If more than eight specialists determine that the warp knit has good writing effect, it is excellent. If five~~-~~to about seven specialists determine that the warp knit has good writing effect, it is ordinary. If more than eight specialists determine that the warp knit has poor writing effect, it is poor.

Appearance

Appearance of the warp knit is evaluated from the sensitive examination by ten specialists. If more than eight specialists determine that the warp knit has good appearance, it is excellent. If five~~-~~to about seven specialists determine that the warp knit has good appearance, it is ordinary. If more than eight specialists determine that the warp knit has poor appearance, it is poor.

Recovery rate of elongation (%)

Total measurement is carried out according to KSK 08125, but proper elongation length when being elongated at ~~the~~ constant velocity is ~~output by~~measured using JIS L 1096. Both ends of a sample of the warp knit with length of 10 cm and width of 15 cm are fixed to Instron. The warp knit is elongated constantly at the stretching velocity of 100 mm/min until the load of 750 g is reached. The warp knit is left as it is with the load being removed. Next, the warp knit is elongated at the constant velocity up to the original position. And then, the warp knit is left as it is for three minutes with the load being

removed. The above process is repeatedly carried out five times. Finally, the elongated length L and the free elongated length L_1 are measured. The free elongated length L_1 is obtained by subtraction of the length measured after the warp knit is left as it is from the elongated length –L (See Fig. 1). The recovery rate of elongation is obtained by putting the elongated length (L) and the free elongated length (L_1) in the following equation:

~~recovery~~ Recovery rate of elongation (%) = [elongated length (L) - free elongated length (L_1)]/elongated length (L) × 100

~~BRIEF DESCRIPTION OF THE DRAWINGS~~

~~The preferred embodiment of the present invention will now be described by way of example with reference to the accompanying drawings in which:~~

~~Fig. 1 is a graph showing recovery rate of elongation of a warp knit measured using an Instron in accordance with the present invention.~~

~~BEST MODE FOR CARRYING OUT THE INVENTION~~

The present invention is ~~now~~ understood more concretely by comparison between examples of the present invention and comparative examples. However, the present invention is not limited to such examples.

Example 1

~~At first~~First, ~~prepare~~ the raw warp knit is prepared by using an extraction type

composite fiber, ~~which~~ wherein the fiber ~~formation~~ forming component is polyethylene terephtalate and the extraction component is copolyester copolymerized with 7 mole% ~~of~~ dimethylene sulfurisophthalic sodium, ~~and which is prepared~~to yield 0.05 denier ~~of~~ ultra fine yarn after removing the extraction component. This ultra fine yarn serves~~,~~ as a yarn ~~of~~ for the front surface layer. For the intermediate layer, ~~, and then using~~ spandex elastic yarn of 40 denier/ 5 filament~~mnet~~ is used , ~~as a yarn of the intermediate layer,~~ and then ~~using~~ polyester yarn with mono filament of 5 denier is used as a yarn ~~of~~ for the rear surface layer. ~~At this time, ratio in~~ W~~w~~eight ratio of the yarn of the front surface layer ~~:~~ to the yarn of the intermediate layer ~~:~~ to the yarn of the rear surface layer is 55 % ~~in~~ to ~~weight :~~ 10 % ~~in weight~~to ~~:~~ 35 %~~, in weight.~~ Next, ~~treat~~ the manufactured raw warp knit is treated with ~~by~~ raising machine until ~~l~~ 50%~~the~~ shrinkage of the warp knit is reached~~.~~ ~~50%~~. ~~And then, after~~ Next, ~~heating~~ the warp knit is pre-heated at 190℃ ~~preliminarily~~, ~~dipping~~ dipped ~~the warp knit~~ in NaOH solution(1% concentration) ~~during~~ for 30 minutes at 98℃ in ~~other~~ order to remove the extraction component of the composite fiber. ~~And~~ Tthen ~~prepare~~ a processed warp knit is prepared having ~~the~~ a density of 60 wales and courses~~each~~/inch by dyeing(with disperse dyes), buffing and heating at 180℃ to finally obtain ~~the~~a ~~above mentioned~~ warp knit of the present invention. ~~And then, evaluate the~~ The properties of the processed warp knit are evaluated as ~~above~~ mentioned above. ~~methods.~~ The results of~~-~~ the ~~-~~evaluation ~~were~~ are indicated in Table 1.

Example 2

~~At first, prepare~~ First, the raw warp knit is prepared by using an extraction type composite fiber, ~~which~~ wherein the fiber ~~formation~~ forming component is polyethylene terephtalate and the extraction component is copolyester copolymerized with 7 mole % of dimethylene sulfurisophthalic sodium, ~~and which is prepared~~to yield 0.07 denier of ultra fine yarn after removing the extraction component. This ultra fine yarn serves~~,~~ as a yarn ~~of~~ for the front surface layer. For the intermediate layer, ~~, and then using~~ spandex elastic yarn of 40 denier/ 5 filamenets is used. ~~as a yarn of the intermediate layer,~~ and then ~~using~~ polyester yarn with mono filaments of 3 denier is used as a yarn ~~of~~ for the rear surface layer. ~~At this time, ratio in w~~Weight ratio of the yarn of the front surface layer ~~:~~ to the yarn of the intermediate layer ~~:~~ to the yarn of the rear surface layer is 60 % ~~in weight~~to ~~:~~ 5 % ~~in weight~~to ~~:~~ 35 %~~, in weight.~~ —Next, ~~treat~~ the manufactured raw warp knit ~~by~~ is treated with a raising machine until ~~the~~ 55% shrinkage of the warp knit is reached~~, 55%~~. ~~And then, after heating~~Next, the warp knit is pre-heated at 190℃ ~~preliminarily~~, ~~dipping~~ dipped ~~the warp knit~~ in NaOH solution(1% concentration) ~~during~~ for 30 minutes at 98℃ in ~~other~~ order to remove the extraction component of the composite fiber. —— ~~And~~ Tthen ~~prepare a~~ processed warp knit is prepared having ~~the~~ a density of 55 ~~each~~wales and courses/inch by dyeing(with disperse dyes), buffing and heating at 180℃ to finally obtain ~~the above mentioned~~a warp knit of the present invention. ~~—And then, evaluate~~ Tthe properties of the processed warp knit are evaluated as ~~above~~ mentioned above. ~~methods.~~ The results of the evaluation ~~were~~ are indicated in Table 1.

Example 3

~~At first~~First, ~~prepare~~ the raw warp knit is prepared by using an extraction type composite fiber, ~~which~~ wherein the fiber ~~formation~~ forming component is polyethylene terephtalate and the extraction component is copolyester copolymerized with 7 mole% ~~of~~ dimethylene sulfurisophthalic sodium, ~~and which is prepared~~to yield 0.05 denier ~~of~~ ultra fine yarn after removing the extraction component. This ultra fine yarn serves~~,~~ as a yarn ~~of~~ for the front surface layer. For the intermediate layer, ~~and then using~~ spandex elastic yarn of 40 denier/ 5 ~~filamnet~~ filaments is used.~~as a yarn of the intermediate layer, and~~ and then using copolyester yarn with mono filament of 5 denier and shrinkage rate of~~in~~ boiling water of 28%(high shrinkage yarn) is used as a yarn ~~of~~ for the rear surface layer. ~~At this time, ratio in~~W~~-~~weight of the yarn of the front surface layer ~~:~~ to the yarn of the intermediate layer ~~:~~ to the yarn of the rear surface layer is 55 % ~~in weight :~~to 10 % ~~in weight :~~to 35 %. ~~in weight.~~ Next, ~~treat~~ the manufactured raw warp knit is treated with a ~~by~~ raising machine until ~~the~~ 50% shrinkage of the warp knit is reached. ~~50%. And~~ ~~then,~~Next, ~~after heating~~ the warp knit is pre-heated at 190℃ ~~preliminarily~~, ~~dipping~~ dipped ~~the warp knit~~ in NaOH solution(1% concentration) ~~during~~ for 30 minutes at 98℃ in ~~other~~ order to remove the extraction component of thecomposite fiber. ~~And~~ Tthen ~~prepare~~ a processed warp knit is prepared having ~~the~~ a density of 60 ~~each~~wales and courses/inch by dyeing(with disperse dyes), buffing and heating at 180℃ ~~-~~to finally ~~the above mentioned~~obtain the warp knit of the present invention. ~~And then, evaluate~~

~~T~~the properties of the processed warp knit are evaluated as ~~above~~-mentioned ~~methods~~above. The results of the evaluation ~~were~~ are indicated in Table 1.

Example 4

~~At first~~First, ~~prepare~~ the raw warp knit is prepared by using an extraction type composite fiber, ~~which~~ wherein the fiber ~~formation~~forming component is polyethylene terephtalate and the extraction component is copolyester copolymerized with 7 mole% of dimethylene sulfurisophthalic sodium, ~~and which is prepared~~to yield 0.07 denier of ultra fine yarn after removing the extraction component~~,~~. This ultra fine yarn serves as a yarn ~~of~~ for the front surface layer. For the intermediate layer, ~~and then using~~ spandex elastic yarn of 40 denier/ 5 ~~filamnet~~ filaments is used.~~as a yarn of the intermediate layer,~~ and then ~~using~~ copolyester yarn ~~of~~ with mono filament of 3 denier and shrinkage rate ~~of~~ in boiling water of 20%(high shrinkage yarn) is used as a yarn ~~of~~ for the rear surface layer. ~~At this time, ratio in w~~Weight of the yarn of the front surface layer ~~:~~ to the yarn of the intermediate layer ~~:~~ to the yarn of the rear surface layer is 60 % ~~in weight~~to ~~:~~ 5 % ~~in weight :~~to 35 %~~. in weight.~~ Next, ~~treat~~ the manufactured raw warp knit is treated with a ~~by~~ raising machine until ~~the~~ 55% shrinkage of the warp knit is reached~~. 55%.~~ ~~And then~~Next, ~~after heating~~ the warp knit is pre-heated at 190℃ ~~preliminarily~~, ~~dipping~~ dipped ~~the warp knit~~ in NaOH solution(1% concentration) ~~during~~ for 30 minutes at 98℃ in ~~other~~ order to remove the extraction component of the composite fiber. ~~And then~~Then ~~prepare~~ a processed warp knit is prepared having the density of 55 ~~each~~wales and

courses/inch by dyeing(with disperse dyes), buffing and heating at 180℃ to finally obtain a ~~the above mentioned~~ warp knit of the present invention. ~~And then, evaluate~~ Then the properties of the processed warp knit are evaluated as ~~as above~~ mentioned above. ~~methods.~~ The results of the evaluation ~~were~~ are indicated in Table 1.

Comparative ~~example~~ Example 1

~~At first~~First, ~~prepare~~ the raw warp knit is prepared by using an extraction type composite fiber, ~~which~~ wherein the fiber ~~formation~~ forming component is polyethylene terephtalate and the extraction component is copolyester copolymerized with 7 mole % ~~of~~ dimethylene sulfurisophthalic sodium, ~~and which is prepared~~to yield 0.05 denier ~~of~~ ultra fine yarn after removing the extraction component~~,~~. This ultra fine yarn serves as a yarn ~~of~~ for the front surface layer. ~~, and then using~~ Ppolyester yarn with mono filament of 0.5 denier is used as a yarn ~~of~~ for the rear surface layer. At this time, ~~ratio in~~ weight ratio of the yarn of the front surface layer ~~:~~ to the yarn of the rear surface layer is 55 % ~~in weight~~to ~~:~~ 45 %. ~~in weight.~~ Next, ~~treat~~ the manufactured raw warp knit is treated ~~by~~ with raising machine until ~~the~~ 50% shrinkage of the warp knit is reached. ~~50%.~~ Next, the ~~And then, after heating the~~ warp knit is pre-heated at 190℃ ~~preliminarily~~, ~~dipping~~ dipped ~~the warp knit~~ in NaOH solution(1% concentration) ~~during~~ for 30 minutes at 98℃ in ~~other~~ order to remove the extraction component of the composite fiber. Then ~~And then prepare~~ a processed warp knit is prepared having ~~the~~ a density of 60 wales and courses~~each~~/inch by dyeing(with disperse dyes), buffing and heating at 180℃ to finally

obtain ~~the above mentioned~~ warp knit. ~~And then, evaluate~~ Tthe properties of the processed warp knit are evaluated as ~~above~~ mentioned above~~methods~~. ~~The~~ results of evaluation ~~were~~ are indicated in Table 1.

Comparative ~~example~~ Example 2

~~At first~~First, ~~prepare~~ the raw warp knit is prepared by using an extraction type composite fiber, ~~which~~ wherein the fiber ~~formation~~ forming component is polyethylene terephtalate and the extraction component is copolyester copolymerized with 7 mole% ~~of~~ dimethylene sulfurisophthalic sodium, ~~and which is prepared~~to yield 0.4 denier ~~of~~ ultra fine yarn after removing the extraction component. This ultra fine yarn serves ~~,~~ as a yarn of the front surface layer. ~~, and then using~~ Ppolyester yarn with mono filament of 0.5 denier is used as a yarn of the rear surface layer. At this time, ~~ratio in~~ weight ratio of the yarn of the front surface layer ~~:~~ to the yarn of the rear surface layer is 60 % ~~in weight :~~to 40 %. ~~in weight~~. Next, ~~treat~~ the manufactured raw warp knit is treated ~~by~~ with raising machine until ~~the~~ 20% shrinkage of the warp knit is reached. ~~20%.~~ — Next, ~~And then, after heating~~ the warp knit is pre-heated at 190℃ ~~preliminarily~~, dipped~~dipping the warp knit~~ in NaOH solution(1% concentration) ~~during~~ for 30 minutes at 98℃ in ~~other~~ order to remove the extraction component of the composite fiber. ——Then~~And then prepare~~ a processed warp knit is prepared having ~~the~~ a density of 60 wales and courses~~each~~/inch by dyeing(with disperse dyes), buffing and heating at 180℃ to finally the ~~above mentioned~~ warp knit. ~~And then, evaluate~~ Tthe properties of the processed warp knit are evaluated

as above mentioned above. The results of the evaluation were are indicated in Table 1.

Comparative example Example 3

At first First, prepare the raw warp knit is prepared by using an extraction type composite fiber, which wherein the fiber formation forming component is polyethylene terephtalate and the extraction component is copolyester copolymerized with 7 mole% of dimethylene sulfurisophthalic sodium, and which is prepared to yield 0.05 denier of ultra fine yarn after removing the extraction component. This ultra fine yarn serves as a yarn of for the front surface layer. , and then using Ppolyester yarn with mono filament of 10 denier is used as a yarn of for the rear surface layer. At this time, ratio in weight ratio of the yarn of the front surface layer : to the yarn of the rear surface layer is 55 % in weight : to 45 %. in weight. —Next, treat the manufactured raw warp knit is treated with by raising machine until the 55% shrinkage of the warp knit is reached. 55%. And then, after heating Next, the warp knit is pre-heated at 190℃ preliminarily, dipping dippedthe warp knit in NaOH solution(1% concentration) during for 30 minutes at 98℃ in other order to remove the extraction component of the composite fiber.— And thenThen, prepare a processed warp knit is prepared having the a density of 60 wales and courseseach/inch by dyeing(with disperse dyes), buffing and heating at 180℃ to finally obtain the above mentioned warp knit. And then, evaluate T the properties of the processed warp knit are evaluated using the as above mentioned methods. The

results of the evaluation ~~were~~ are indicated in Table 1.

Comparative ~~example~~ Example 4

~~At first~~First, ~~prepare~~ the raw warp knit is prepared by using an extraction type composite fiber, ~~which~~ wherein the fiber ~~formation~~ forming component is polyethylene terephtalate and the extraction component is copolyester copolymerized with 7 mole% ~~of~~ dimethylene sulfurisophthalic sodium, ~~and which is prepared~~to yield 0.05 denier of ultra fine yarn after removing the extraction component. This ultra fine yarn serves~~,~~ as a yarn ~~of~~ for the front surface layer. ~~, and then using~~ Ppolyester yarn with mono filament of 0.5 denier is used as a yarn of the rear surface layer. At this time, ~~ratio in~~ weight ratio of the yarn of the front surface layer ~~:~~to the yarn of the rear surface layer is 55 % ~~in weight :~~to 45 %. ~~in weight.~~ Next, ~~treat~~ the manufactured raw warp knit is treated ~~by~~ with a raising machine until ~~the~~ 50% shrinkage of the warp knit is reached. ~~50%.~~ Then~~And then, after heating~~ the warp knit is pre-heated at 190℃ ~~preliminarily~~, ~~dipping~~ dipped ~~the warp knit~~ in NaOH solution(1% concentration) ~~during~~ for 30 minutes at 98℃ in ~~other~~ order to remove the extraction component of the composite fiber. A ~~And then prepare~~ a processed warp knit is prepared having ~~the~~ a density of 60 ~~each~~wales and courses/inch by dyeing(with disperse dyes), buffing and heating at 180℃ ~~to~~ finally obtain the ~~above mentioned~~ warp knit. ~~And then, evaluate~~ Tthe properties of the processed warp knit are evaluated as ~~above~~ mentioned above. ~~methods.~~ The results of the evaluation ~~were~~ are indicated in Table 1.

Comparative ~~example~~ Example 5

~~At first~~First, ~~prepare~~ the raw warp knit is prepared by using an extraction type composite fiber, ~~which~~ wherein the fiber formation component is polyethylene terephtalate and the extraction component is copolyester copolymerized with 7 mole% of dimethylene sulfurisophthalic sodium, ~~and which is prepared~~to yield 0.05 denier of ultra fine yarn after removing the extraction component. This ultra fine yarn is used~~,~~ as a yarn ~~of~~ for the front surface layer~~., and then using~~ ~~polyester~~ Polyester yarn with mono filament of 10 denier is used as a yarn ~~of~~ for the rear surface layer. At this time, ~~ratio in~~ the weight ratio of the yarn of the front surface layer ~~:~~ to the yarn of the rear surface layer is 55 % ~~in weight :~~to 45 %~~. in weight.~~ Next, ~~treat~~ the manufactured raw warp knit is treated with a ~~by~~ raising machine until ~~the~~ 55% shrinkage of the warp knit is reached~~. 55%.~~ ~~And then, after~~ Then ~~heating~~ the warp knit is pre-heated at 190℃ ~~preliminarily~~, and ~~dipping~~ dipped ~~the warp knit~~ in NaOH solution(1% concentration) ~~during~~ for 30 minutes at 98℃ in ~~other~~ order to remove the extraction component of composite fiber. ~~And~~ Tthen ~~prepare~~ a processed warp knit is prepared having ~~the~~ a density of 60 ~~each~~wales and courses/inch by dyeing(with disperse dyes), buffing and heating at 180℃ ~~to~~ finally ~~the~~ obtain the~~above mentioned~~ warp knit. ~~And then, evaluate t~~The properties of the processed warp knit are evaluated as ~~above~~ mentioned above.~~methods.~~ The results of the evaluation ~~were~~ are indicated in Table 1.

Table 1: Results of property evaluation of warp knit

Class	softness	Draping property	Witting effect	appearance	Recovery rate of elongation(%)	
					In the direction of wale	In the direction of course
Example 1	Excellent	Excellent	Excellent	Excellent	41.9	37.6
Example 2	Excellent	Excellent	Excellent	Excellent	35.7	32.8
Example 3	Excellent	Excellent	Excellent	Excellent	42.2	38.7
Example 4	Excellent	Excellent	Excellent	Excellent	36.1	33.5
Comparative example 1	Ordinary	Poor	Excellent	Ordinary	20.0	18.6
Comparative example 2	Poor	Excellent	Poor	Ordinary	15.9	17.2
Comparative example 3	Poor	Excellent	Excellent	Ordinary	10.4	13.0
Comparative example 4	Ordinary	Poor	Excellent	Ordinary	20.2	18.6
Comparative example 5	Poor	Excellent	Excellent	Ordinary	10.4	13.0

~~INDUSTRIAL APPLICABILITY~~

As described above, the warp knit according to the present invention has excellent touch, appearance, elastic recovery rate, draping property, and thus is useful for materials of artificial leathers or ladies' clothes. Furthermore, the process of preparing such a warp knit according to the present invention has very excellent warping property and knitting property.